



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D350-748-203
Job Sheet 157356



Part No: D350-748-203

Job Qty: 1 ea

Part Name: AS350 / AS355 Stainless Steel Aft Crosstube



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 9/30/17

Job Tracking No:

Due Date: 10/31/17

Created By: Mario Poulin

Type: Stock

Description:

Customer: Air Methods Corporation (CAMET01)

7301 South Peoria Street Englewood, CO, 80112 USA ph:(303) 792-7400

Note: DWG REV A IPP REV:A 15.03.23 NEW ISSUE DD VERF;JLM

Ship Via:

Bill of Materials

Part/Part Name	Part Note	Serial No	Quantity	Location
D350-748-203 AS350 / AS355 Stainless Steel Aft Crosstube	DWG REV A IPP REV:A 15.03.23 NEW ISSUE DD VERF;JLM		0.000	
AETC-1032 Insert			0.000	
AN4-41A Bolt			0.000	
AN4-6A Bolt			0.000	
AN5-32A Bolt			0.000	
D350-748-243TRN Crosstube Installation, High Aft	DWG REV A IPP Rev: PRELIM New Issue LL 12.05.08		0.000	
D3500-1 Saddle	DWG REV C IPP Rev:A New Issue 06-06-15 JLM		0.000	
D3501-1 Bushing	DWG REV A IPP Rev:A New Issue 06-05-09 JLM		0.000	
D3502-1 Support	DWG REV B IPP Rev:A New Issue 06-07-06 JLM IPP Rev:B Add tooling hole 07-03-28 Esr rev C added DT9430 08.11.03 EC verified by:DD		0.000	
D5123-7 Clamp Cushion	DWG REV D IPP REV:A 15.03.19 NEW ISSUE DD VERF;JLM IPP REV:B 16-11-11 AS PER DWG REV.D DD VERF;JLM		0.000	
MS21042L4 Nut			0.000	
MS21042L5 Nut				
MS21920-20 Clamp				
MS51958-63 Screw				
NAS1149C0363R Washer				
NAS1149D0463J Washer				
NAS1149D0563J Washer				

Status: Stock

Part: D350-748-203 B157356

Created: 9/30/17 1:32 PM DART.LAJEUNESSE.MARIE



Serial No: S000269

Printed By: Goldston, Justin 10/2/17 10:45 AM

Job Routing

Operation	Qty	Standard	Workcenter/Supplier
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DART
AEROSPACE
S003348

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K64 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com



AS350 / AS355 Stainless Steel Aft Crosstube

PART NO: D350 - 748 - 203
Revision:
Operation: Start up Operation
Quantity: 1
Change No:

Mfg Date: 10/28/17 Job No: 157356
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Op No		Due Date	Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time
90	Start up Operation	1 Ea 10/30/17	0.00	0.00	Start up container	
100	DC	1 pcs 10/30/17	0.00	0.00	DAS DC	
200	Crosstubes	1 pcs 10/31/17	0.00	1.98	41 Crosstube	NOV 01 17
210	QC	1 pcs 10/31/17	0.00	0.00	9-89 QC5	
220	Packaging	1 pcs 10/31/17	0.00	0.00	Packaging1	
230	QC	1 pcs 10/31/17	0.00	0.00	QC4	
240	Packaging	1 pcs 10/31/17	0.00	0.00	Packaging3	
250	QC21-FG	1 Ea 10/31/17	0.00	0.00	QC21	

Part Op 100 - Photocopy bluefile & type labels per PPPD350-748-201 CHG001

Descriptions: 200 - INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER 2-Install supports with Proseal 890 per D350-748-243 and QSI 015 3-Install supports clamps Using Dt8876 as per Dwg D350-748-243, Torque to 60-80 IN-LBS.
 210 - ***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED FOR 72HOURS AS PER DWG.***
 230 - ***VERIFY BY _____ BATCH # TO MATCH W/O _____
 240 - Identify and pack for shipping as per PPPD350-748-203

Job BOM

Part / Item	Component Name	Quantity	Operation	Special Comments
D350-748-203 B157356		1 Ea (1 ea)	90-Start up Operation	
AETC-1032	Insert	1 Ea (1 ea)	200-Crosstubes	
D3502-1	Support	2 Ea (2 ea)	200-Crosstubes	
D5123-7	Clamp Cushion	2 Ea (2 ea)	200-Crosstubes	
MS21920-20	Clamp	2 Ea (2 ea)	200-Crosstubes	
NAS1149C0363R	Washer	1 Ea (1 ea)	200-Crosstubes	
AN4-41A	Bolt	8 Ea (8 ea)	220-Packaging	
AN4-6A	Bolt	16 Ea (16 ea)	220-Packaging	
AN5-32A	Bolt	4 Ea (4 ea)	220-Packaging	
D3500-1	Saddle	4 Ea (4 ea)	220-Packaging	
D3501-1	Bushing	16 Ea (16 ea)	220-Packaging	
MS21042L4	Nut	24 Ea (24 ea)	220-Packaging	
MS21042L5	Nut	4 Ea (4 ea)	220-Packaging	
MS51958-63	Screw	1 pcs (1 ea)	220-Packaging	
NAS1149D0463J	Washer	32 Ea (32 ea)	220-Packaging	
NAS1149D0563J	Washer	8 Ea (8 ea)	220-Packaging	

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D350-748-203 B157356	1	1	0	0
200-Crosstubes	AETC-1032 137335	1	0	0	0
	D3502-1 166657(5001423)	2	0	0	0
	D5123-7 153236	2	0	0	0
	MS21920-20 138246	2	0	0	0
	NAS1149C0363R 138326	1	0	0	0
220-Packaging	AN4-41A 500882	8	0	0	0
	AN4-6A 500883	16	0	0	0
	AN5-32A 500882	4	0	0	0
	D3500-1 500881	4	0	0	0
	D3501-1 500881	16	0	0	0
	MS21042L4 FM138326-1x2	24	0	0	0
	MS21042L5 500881	4	0	0	0
	MS51958-63 FM134962	1	0	0	0
	NAS1149D0463J 500880	32	0	0	0
	NAS1149D0563J 500880	8	0	0	0

Part Specifications

Specifications could not be found.

Work Order Summary

Thursday, September 28, 2017 8:29:21 AM

Page 1 of 2

Criteria : Work Order ID: 157356 Item ID: D350-748-203 Product Family CROSSTUBES
Work Order Start Dates 3/13/2017 to 3/13/2017 11:59:59 PM Work Order Required Dates 3/27/2017 to 3/27/2017 11:59:59 PM
Reference: SCHEDULED
Work Order Status Released

Work Order ID 157356 Required Qty 1.0000 Status Code Released
Item ID D350-748-203 Accepted Qty 0.0000 Scrap Qty 0.0000
Item Name AS350 / AS355 Stainless Steel Aft Crosstube
Current Acct Value \$4,748.617

Start Date 3/13/2017 Required Date 3/27/2017 Completed Date

Standard ** Actual ** ** Acct. Value ** ** Variance ** ** Variance % **

Direct Costs	Total	Each	Each	Each	Each
Material	\$2,000.000	\$0.000	\$2,278.234	\$2,278.234	100.00%
Labor	\$802.037	\$0.000	\$850.850	\$850.850	100.00%
Outplant	\$90.938	\$0.000	\$131.246	\$131.246	100.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Fixed Burden	\$1,640.354	\$0.000	\$2,050.969	\$2,050.969	100.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
** Total **	\$4,533.328	\$0.000	\$5,311.299	\$5,311.299	

Item ID/Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
PO ID PO Line Nbr PO Receiver Date Domestic Unit Price PO Receipt Qty Domestic Received Amt Certification Standard					
D350-748-243TRN					
Crosstube Installation, High Aft					
PO Rout Seq ID PO Vendor ID VC-SKY001			9/12/2017	1.0000	\$3,290.446
PO37837 5 9/26/2017 3:13:00 PM \$90.9378 1.0000 \$90.938 m138600					
Total Matl Amts:					\$3,290.446

Invoice Rout Seq ID Invoice Vendor ID VC-SKY001

Invoice ID	Invoice Line Nbr	Invoice Date	Invoice Unit Price	Invoice Qty	Invoice Amt
MWQ33228	5	9/26/2017 2:38:06 PM	90.9378	1.0000	\$90.938

Work Center CNC Bend 2

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
paul01	9/12/2017											
110			0.00	0.00	3.80	3.80	1.00	\$0.000	\$70.662	\$232.931	\$0.000	\$303.594
whit01	9/12/2017											
110			0.00	0.00	3.71	3.71	1.00	\$0.000	\$68.876	\$227.042	\$0.000	\$295.918
Total:			0.00	0.00	7.51	7.51	2.00	\$0.000	\$139.538	\$459.974	\$0.000	\$599.512

Thursday, September 28, 2017 8:29:22 AM

Work Order Summary

Page 1 of 2

Work Center Crosstubes

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
pain01												
	9/13/2017											
130			0.00	0.00	2.09	2.09	1.00	\$0.000	\$38.833	\$128.008	\$0.000	\$166.841
	9/14/2017											
130			0.00	0.00	2.54	2.54	1.00	\$0.000	\$47.254	\$155.768	\$0.000	\$203.022
PAUL01												
	9/13/2017											
128			0.00	0.00	2.74	1.37	2.00	\$0.000	\$25.489	\$84.021	\$0.000	\$109.510
Total:			0.00	0.00	7.37	6.00	4.00	\$0.000	\$111.575	\$367.796	\$0.000	\$479.372

Work Center SprayPaint

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
SHEL02												
	9/24/2017											
180			0.00	0.00	1.51	0.76	2.00	\$0.000	\$14.076	\$46.401	\$0.000	\$60.478
180			0.00	0.00	0.57	0.05	11.00	\$0.000	\$0.957	\$3.154	\$0.000	\$4.110
180			0.00	0.00	1.17	0.11	11.00	\$0.000	\$1.972	\$6.501	\$0.000	\$8.473
Total:			0.00	0.00	3.25	0.91	24.00	\$0.000	\$17.005	\$56.056	\$0.000	\$73.061

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356**SCRAP**

Page 1

Item ID: D350-748-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00

1

Customer:

Reference:

DAS

21

9-89

Approvals:

Process Plan:

Date:

FEB 27 2017

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

Draw Nbr

Revision Nbr

D350-748-243

A

100

Document Control

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Doc.Control -USB or Paperwork

Photocopy bluefile & type labels per PPPD350-748-201

CHG001

110

BENDING MACHINE - CROSSTUBES

0.00

110

CNC Bend 2

Memo

0.12

CNC Alpha 160 Bender

Bend tube as per Dwg D350-748-243 using CNC bender program D350A and Folio FT

*****UNDER BEND .225" PER SIDE*****

****USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS****

TW 17.06.13

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 2

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***

Start Date: 3/2/2017

Start Qty: 1.00

1

Cust Item ID:

Required Date: 3/16/2017

Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

127

QC15- Crosstube Dimensional Check

0.00

127

QC

Memo

0.00

Quality Control

MARK CUT LINES

① 17-09-13 PD

128

0.00

128

Crosstubes

Memo

0.14

Crosstubes

CUT TUBE AT HEIGHT ON FAI SHEET

VERF HEIGHT 31.375 BY QC 15 LEVEL INSPECTOR JWVERF TWIST 0.018 BY QC15 LEVEL INSPECTOR JWDP7 17-09-12

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 157356

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157356

Page 3

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***Start Date: 3/2/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference: 8A0

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

130

0.00

130

Crosstubes

Crosstubes

Memo

0.21

2- Drill Tube as per Dwg D350-748-243 Using DT8876 Drill Jigs,
Set-up drill table as per QSI 010

3 -Deburr

4- Engrave Part # and Batch # as per Dwg D350-748-243

5-Remove all marks from tube within limits of D350-748-243

GP 17 09 13

- GP 17-09-14

P.I.O. →

140

QC5- Inspect part completeness to step on W/O

0.00

140

QC

Memo

0.00

Quality Control

① 17-09-15 PD

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☒ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date : 17-09-14		Step #: 130		QTY Effective : 1			MRB (QSI042) Approval DAS 9-30				
Description Work Order Deviation Tube Cracked after bending, noticed during Grinding. material. <i>Should be on w/o 163187</i>				Disposition SCRAP destroy.				Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____			
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☒ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ ☒ Cracks Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		FAULT CATEGORY Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐		Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	
OTHER : _____											

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 4

Item ID: D350-748-203**Accept*****N900040100*****Setup Start *NS1*****Revision ID:****Stop *NS2*****Item Name:** AS350 / AS355 Stainless Steel Aft Crosstube**Start Date:** 3/2/2017 **Start Qty:** 1.00 ***1*****Cust Item ID:****Required Date:** 3/16/2017 **Req'd Qty:** 1.00 ***1*****Customer:****Reference:****Approvals:** **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____**Run Start *NR1*****QC:** _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____**Stop *NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
174	Outsource process - NDT per QSI038 4.1	0.00				(		SEP 26 2017	DAS 13 9-00
174									
Outsource2	Memo	8.00							
Outsource process - NDT	ISSUE P/O TO ACCUREN: <u>37837</u>								
176	Receive & Inspect for Damage & Mat'l Certs	0.00							
176									
Packaging	Memo	0.00							
Packaging									
178	QC5- Inspect part completeness to step on W/O	0.00							
178									
QC	Memo	0.00							
Quality Control									

1x SEP 17-9-261 SEP 27 2017 DAS
38
9-00

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="border: none;">Skid-tube ☐</td> <td style="border: none;">Cross tube ☐</td> <td style="border: none;">Water Jet ☐</td> <td style="border: none;">Engineering ☐</td> </tr> <tr> <td style="border: none;">Machining ☐</td> <td style="border: none;">Small Fab ☐</td> <td style="border: none;">Prod. Eng. Coord. ☐</td> <td style="border: none;">Quality ☐</td> </tr> <tr> <td style="border: none;">Thermoforming ☐</td> <td style="border: none;">Finishing ☐</td> <td style="border: none;">Rec/Store/Packaging ☐</td> <td style="border: none;">Other ☐</td> </tr> <tr> <td style="border: none;">Large Fab ☐</td> <td style="border: none;">Composite ☐</td> <td style="border: none;">Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐																						
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐																						
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐																						
Large Fab ☐	Composite ☐	Supplier ☐																							
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																		
Description Work Order Deviation				Disposition				Completed By																	
								Lead hand / Supervisor Approval Verification																	
								QC / QA Coordinator Approval																	
Root Cause		FAULT CATEGORY																							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐																				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐																				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐																				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐																				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐																				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐																				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐																				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐																				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐																				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐																				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____																							
Misidentified ☐	Past Due ☐																								

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 5

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

180

180

SprayPaint

Spray Painting

SprayPaint

Memo

VERIFY BY DAS BATCH # TO MATCH W/O157356 41VERIFY BY 9-89 PART # TO MATCHW/O 157356

MASK SCRIBE B# & P# AND VERIFY

1. Apply Axalta 13205S Cleaner inside and outside crosstube per QSI 005 4.1.4

BATCH: 132520

2. Axalta 230S Metalok inside and outside crosstube per QSI 005 4.1.4

BATCH: 138021

3. Prime inside and outside crosstube per QSI 005 4.2

BATCH: 137487

4. Paint outside of crosstube per QSI 005 4.2

BATCH: 138478

0.00

0.07

DAS
41
9-89

SEP 24 2017

*to be pulled
on D350-748 2039B*

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : ☐					

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 6

Item ID: D350-748-203

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017 Start Qty: 1.00

1

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

190

QC14- Inspect Spray Paint

0.00

190

QC

Quality Control

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

***VERIFY BY

38

BATCH # TO MATCH W/O

**VERIFY BY

DAS

PART # TO MATCH

W/O

157356

0-89

DAS
38
SEP 27 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By _____					
				Lead hand / Supervisor Approval Verification _____					
				QC / QA Coordinator Approval _____					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 7

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***Start Date: 3/2/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

0.00

2000

Crosstubes

Crosstubes

Memo

0.09

INSTALL GROUND WIRE INSERT, THEN INSERT SCREW AND WASHER

***LIMIT AIR PRESSURE TO 50 PSI WHEN INSTALLING AETC-1032
INSERT AND ONLY EXPAND INSERT ONCE***1-Abrade mating surfaces of support and crosstube with 180 grit sandpaper,
clean the area with MEK or equivalent as per dwg

2-Install supports with Proseal 890 per D350-748-243 and QSI 015

A/R Proseal 890 Batch: 138408
EXP: 2/183-Install supports clamps Using Dt8876 as per Dwg D350-748-243, Torque to
60-80 IN-LBS.

PROSEAL CURE TIME 72 HOURS:

Start: 17-10-13
Finish: 17-10-16

DAS

41

0.00

OCT 13 2017

OCT 13 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 8

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***Start Date: 3/2/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210

QC5- Inspect part completeness to step on W/O

0.00

210

QC

Memo

0.00

Quality Control

***RE-CHECK TORCQUE ON CLAMP AFTER PROSEAL HAS CURED
FOR 72HOURS AS PER DWG.***

***VERIFY BY _____ BATCH # TO MATCH W/O

***VERIFY BY _____ PART # TO MATCH
W/O _____

220

Pick Kit

0.00

220

Packaging

Memo

0.00

Packaging

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Work Order ID 157356

Tuesday, February 21, 2017 1:00:07 PM

157356

Page 9

Item ID: D350-748-203

Accept

N900040100Setup Start ***NS1***

Revision ID:

Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Stop ***NS2***Start Date: 3/2/2017 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 3/16/2017 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

230

QC4- 100% Inspect kits for completeness

0.00

230

QC

Memo

0.00

Quality Control

***VERIFY BY _____ BATCH # TO MATCH W/O

***VERIFY BY _____ PART # TO MATCH
W/O _____

240

0.00

240

Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD350-748-203

Location: _____

PPP Rev: _____

250

QC21- Final Inspection - Work Order Release

0.00

250

QC

Memo

0.00

Quality Control

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Picklist Print

Tuesday, February 21, 2017 1:00:10 PM

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP REV:A 15.03.23 NEW ISSUE DD VERFJLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

D350-748-243TRN

Manufactured

No

110

Each

6.0000

1

D350-748-243TRN

Crosstube Installation, High Aft

① 002 17-09-12

Location

Loc Qty

Loc Code

LG014

6

142455

1

144979

1

151599

1

151601

1

151602

1

151840

1

D3502-1

Manufactured

No

220

Each

40.0000

2

2

D3502-1

Support

Location

Loc Qty

Loc Code

LG052

40

150010

28

150683

12

D5123-7

Manufactured

No

220

Each

136.0000

2

2

D5123-7

Clamp Cushion

Location

Loc Qty

Loc Code

LG052

124

151551

24

153236

100

LG054

12

139042

12

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			

Root Cause			FAULT CATEGORY		
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐				

Picklist Print

Tuesday, February 21, 2017 1:00:10 PM

Page 2

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

AETC-1032 Purchased No 220 Each 15.0000 1 1

AETC-1032

Insert

Location

Loc Qty

Loc Code

LG050

15

m133732

15

NAS1149C0363R Purchased No 220 Each 217.0000 1 1

NAS1149C0363R

Washer

Location

Loc Qty

Loc Code

FP001

129

m133077

129

GA

79

m133077

79

ST266

9

m133077

9

MS21920-20 Purchased No 220 Each 71.0000 2 2

MS21920-20

Clamp

Location

Loc Qty

Loc Code

FG

2

122254

2

LG050

25

m136740

25

LG056

44

m128650

1

m132675

1

m134055

42

Tuesday, February 21, 2017 1:00:10 PM

Shop Packet Print

Page 2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Tuesday, February 21, 2017 1:00:10 PM

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

MS51958-63

Purchased

No

220

Each

97.0000

1

1

MS51958-63

Screw

Location

Loc Qty

Loc Code

ST267

97

m131886

1

m134962

96

NAS1149D0563J

Purchased

No

220

Each

632.0000

8

8

NAS1149D0563J

Washer

Location

Loc Qty

Loc Code

GA

187

m135774

187

ST263

445

m136295

445

MS21042L4

Purchased

No

220

Each

2,409.000

24

24

MS21042L4

Nut

Location

Loc Qty

Loc Code

FP001

18

m133363

18

GA

187

m135058

187

OVER007

1500

m136450

500

m136838

1000

ST303

704

m136648

704

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Picklist Print

Page 4

Tuesday, February 21, 2017 1:00:10 PM

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

220

Each

284.0000

4

4

MS21042L5

Nut

Location

Loc Qty

Loc Code

GA

21

m127813

21

OVER007

100

m136866

100

ST303

163

m136450

100

m136740

63

AN4-41A

Purchased

No

220

Each

143.0000

8

8

AN4-41A

Bolt

Location

Loc Qty

Loc Code

over003

80

m135978

40

m136851

40

ST342

63

m133769

63

D3501-1

Manufactured

No

220

Each

186.0000

16

16

D3501-1

Bushing

Location

Loc Qty

Loc Code

ST039

98

152322

8

152871

90

ST051A

88

152322

0

155618

88

Tuesday, February 21, 2017 1:00:10 PM

Shop Packet Print

Page 4

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
							Completed By		
							Lead hand / Supervisor Approval Verification		
							QC / QA Coordinator Approval		

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Picklist Print

Tuesday, February 21, 2017 1:00:10 PM

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

NAS1149D0463J

Purchased

No

220

Each

2,948.000

32

32

NAS1149D0463J

Washer

Location

Loc Qty

Loc Code

GA

80

M134508

13

M135056

67

ST260a

1000

M136838

1000

ST263

1868

M136665

1868

AN5-32A

Purchased

No

220

Each

118.0000

4

4

AN5-32A

Bolt

Location

Loc Qty

Loc Code

over004

90

m135536

40

m136741

50

ST336

28

m133988

28

D3500-1

Manufactured

No

220

Each

52.0000

4

4

D3500-1

Saddle

Location

Loc Qty

Loc Code

ST406

52

145757

4

150259

8

151743

20

152839

20

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation			Disposition		
			Completed By		
			Lead hand / Supervisor Approval Verification		
			QC / QA Coordinator Approval		
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabelled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐			
OTHER : _____					

Picklist Print

Tuesday, February 21, 2017 1:00:10 PM

Work Order ID: 157356

157356

Parent Item: D350-748-203

D350-748-203

Parent Item Name: AS350 / AS355 Stainless Steel Aft Crosstube

Start Date: 3/2/2017

Required Date: 3/16/2017

Start Qty: 1.00

Required Qty: 1.00

AN4-6A

Purchased

No

220

Each

697.0000

16

16

AN4-6A

BOLT

Location

Loc Qty

Loc Code

over003

400

M136554

200

M136851

200

ST345

297

M135945

99

M136263

198

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

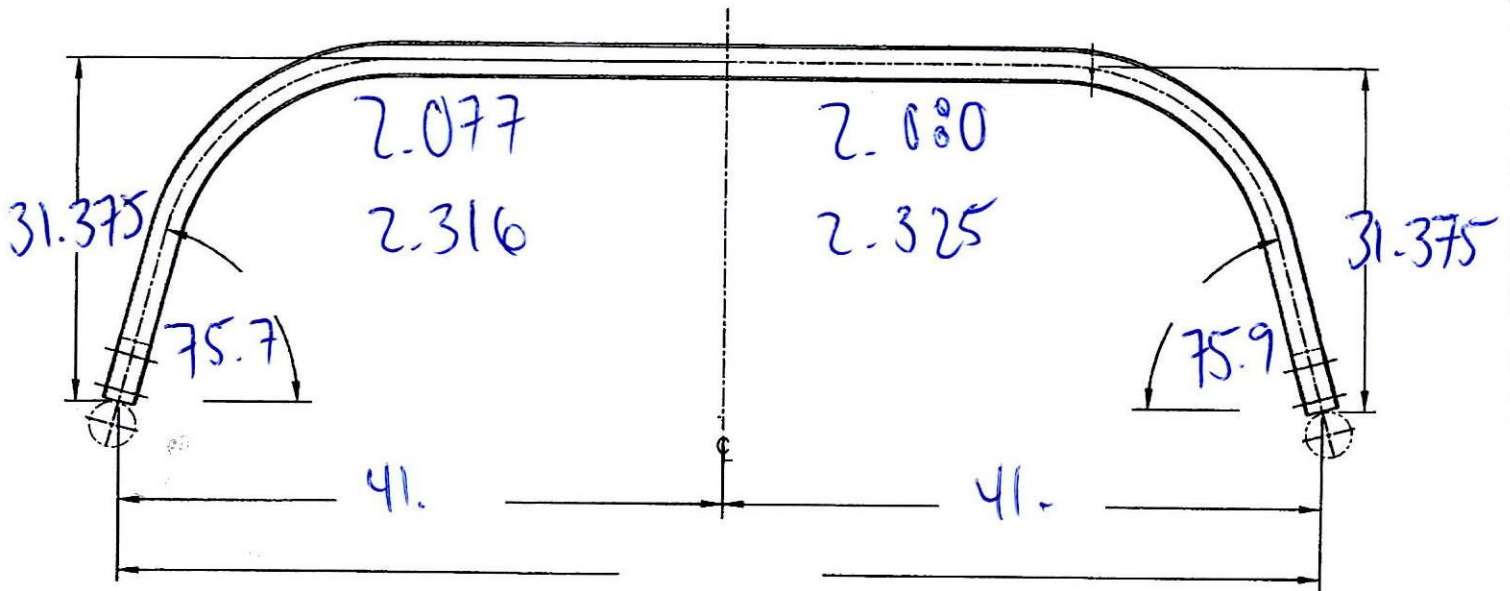
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

DART AEROSPACE LTD		Work Order:	157356
Description: Crosstube High Aft, SS (AS350/355)		Part Number:	D350-748-203
Inspection Dwg: D350-748-243 Rev: A		Page 1 of 1	

Required Dimension	Min	Max
Height	31.10	31.60
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06
Bending Passes	7	--
Crushing	--	8%
Twist	--	0.38



	Side A	Side B
Bending Passes	39	39
Crushing	5.4%	5.6%
Comments		

QC15 Inspection	PD
Date	17.09.13

Rev	Date	Change	Revised by	Approved
A	15.09.09	New Issue	KJ	[Signature]

Item	Qty -243	Part Number	Description
1	X	D350-748-243	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6021-125	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21920-20 OR MS21920-21/-22	CLAMP (PER DART SPEC. M-MS21920-20/-21/-22)
7	1	NAS1149C0363R	WASHER (OR AN960C10)
8	1	NAS1635-3-8	SCREW (OR MS51958-83)
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- MATERIAL: MANUFACTURED FROM D6021-125
FINISHED LENGTH AFTER TURNING = 124.70±0.06 (AFTER BENDING/TRIMMING = 122.70 REF)
- FINISH: PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCE: PER DART QSI 018 UNLESS OTHERWISE NOTED.
WALL THICKNESS ECCENTRICITY PER DART QSI 038 7.2
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- WEIGHT: 29.85 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.290 HOLE.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.

TURNING

- BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.

BENDING

- BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 8% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" TO 0.05" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- TORQUE CLAMPS 80 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO. 157356 MJS
1702-27

DEO ATTACHED

RELEASED

2015 MAR 18

RELEASED

2015 MAR 18
OK
15/5/15 16/2/25

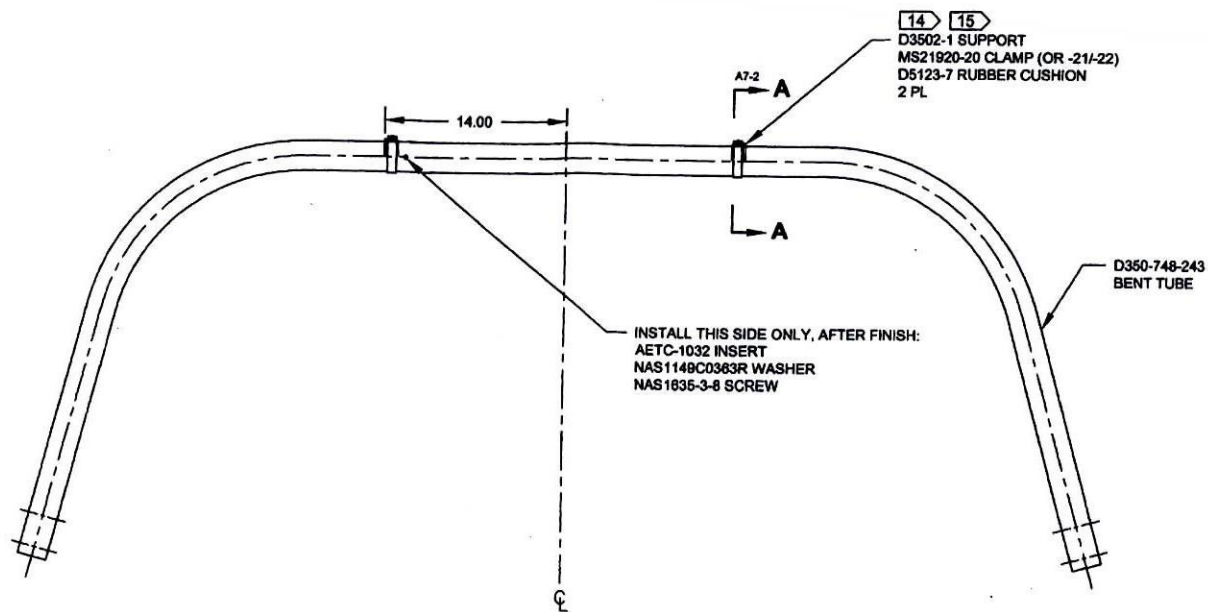
UNDER REVIEW

15/4/16
OK
15/5/15 16/2/25

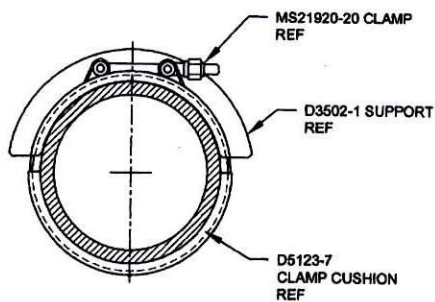
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REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	15.01.21		

DART AEROSPACE LTD	
HAWKESBURY, ONTARIO, CANADA	
DRAWING NO.	REV. A
D350-748-243	SHEET 1 OF 4
TITLE	SCALE
CROSSTUBE (AS 350/355 HI AFT)	NTS

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**D350-748-243
ASSEMBLY DETAIL**



SECTION A-A 04-2
SCALE 6X

DEO ATTACHED

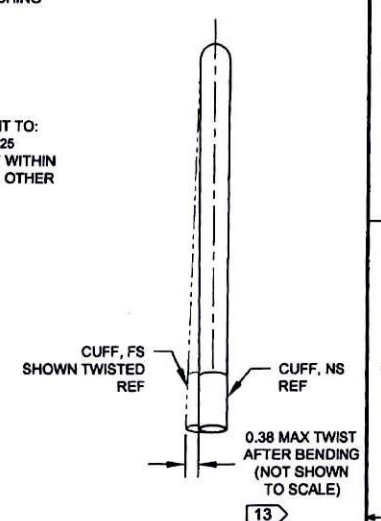
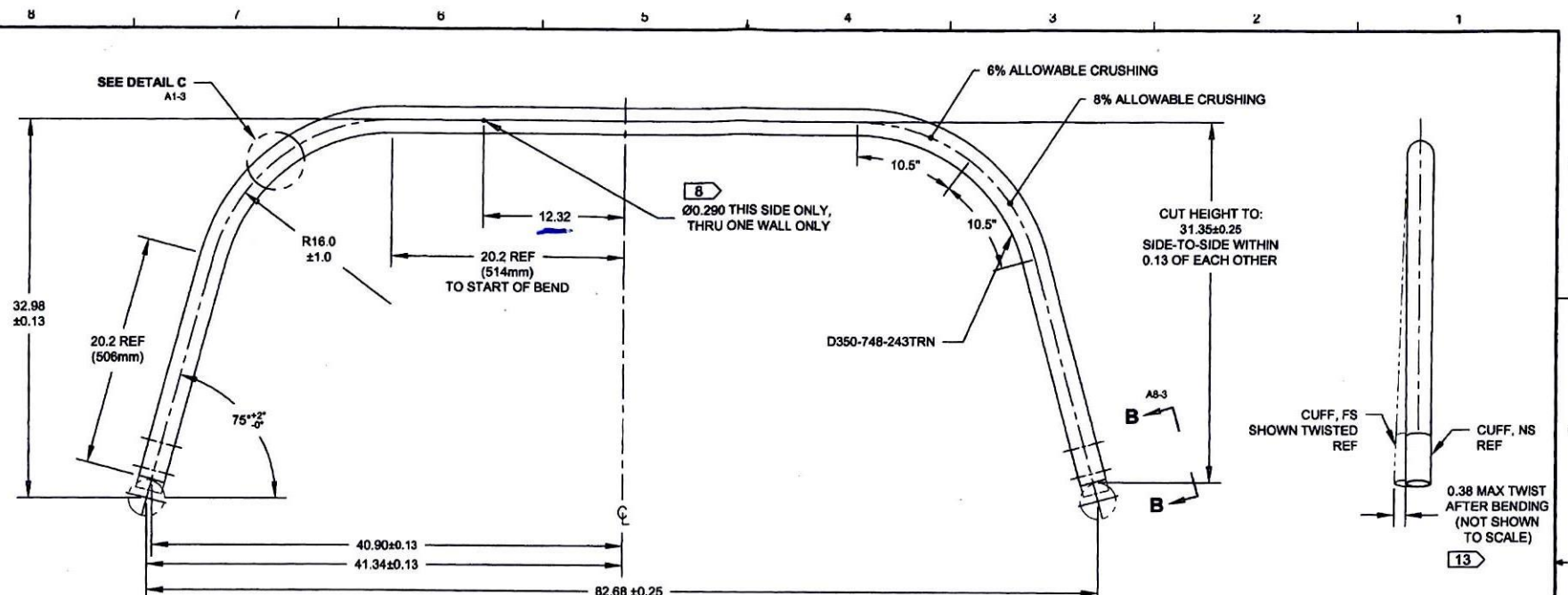
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2015 MAR 18 47

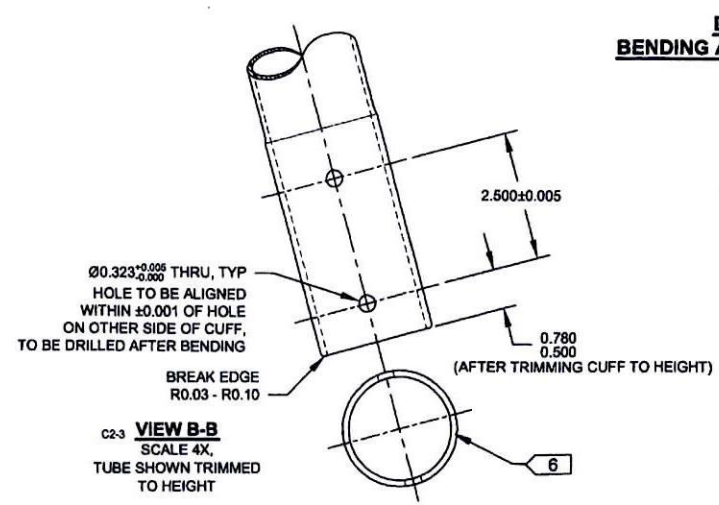
UNDER REVIEW

11/15/14/24
OK 9/16/25

DESIGN	AP	DART AEROSPACE LTD	
DRAWN	AP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	A.P.	DRAWING NO.	REV. A
MFG. APPR.	7/4/14	D350-748-243	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	15.01.21	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

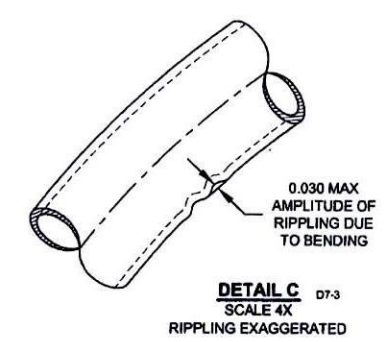


D350-748-243
BENDING AND DRILLING DETAIL 11

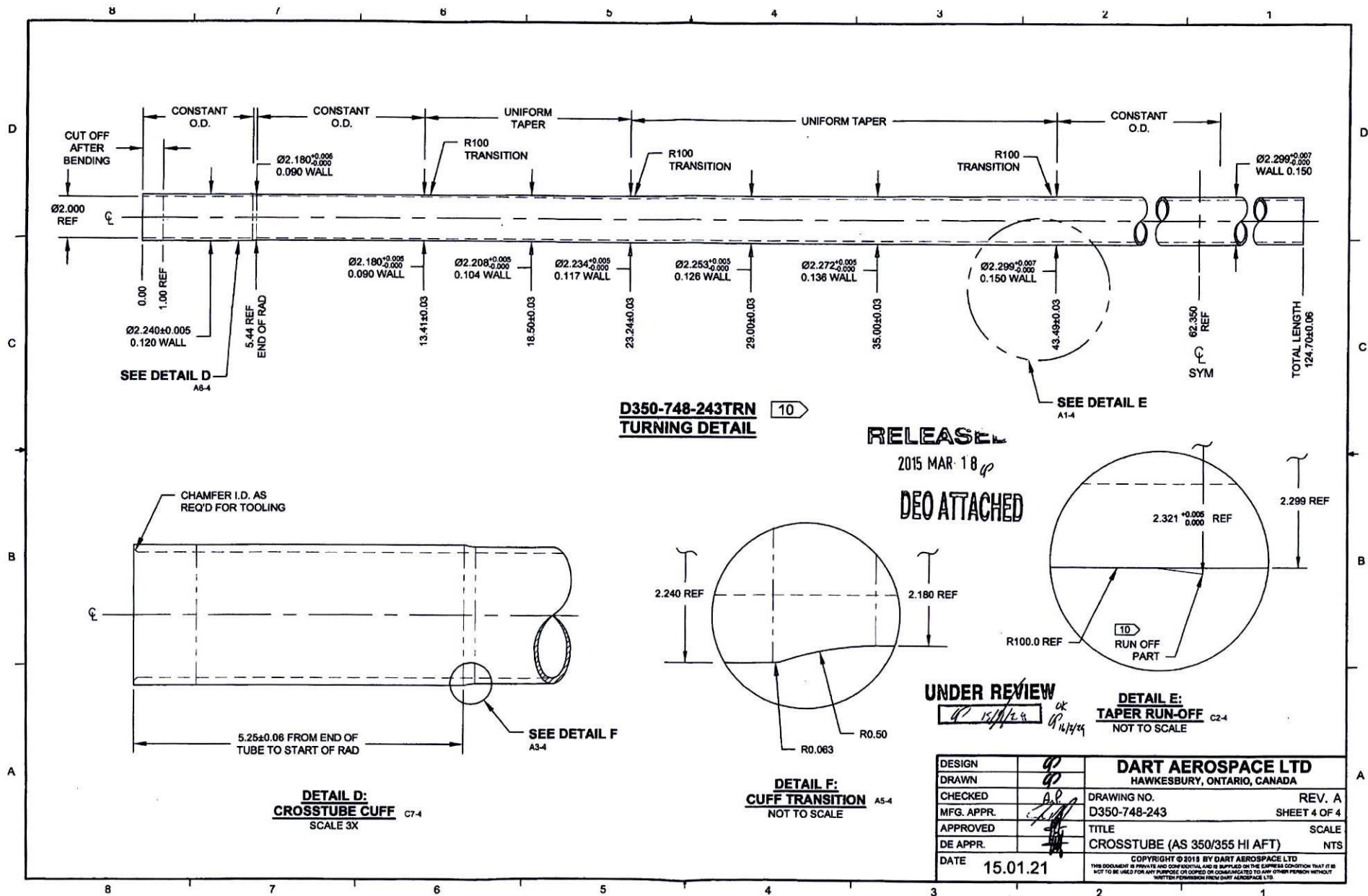


DEO ATTACHED
 RELEASED
 2015 MAR 18

UNDER REVIEW
 15/01/21 OK 15/01/21



DESIGN	AP	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	AP	DRAWING NO. D350-748-243	REV. A SHEET 3 OF 4
CHECKED	A.P.	TITLE	SCALE
MFG. APPR.	[Signature]	CROSSTUBE (AS 350/355 HI AFT)	NTS
APPROVED	[Signature]	COPYRIGHT © 2015 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DE APPR.	[Signature]	DATE 15.01.21	



DRAWING NO. D350-748-243	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-243-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>W</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>[Signature]</i>	APPROVED <i>[Signature]</i>		DE APPR. <i>[Signature]</i>		
DATE 15.11.18	DATE 15.11.18	DATE 16.02.19	DATE FEB 19 2016		DATE 2016.02.19		

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

- 2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 OR
 POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
 2016-02-26
 EN 16-534 *[Signature]*



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID **PO37837**

Purchase Order Date 9/22/2017

PO Print Date 9/26/2017

Page Number 2 of 10

Order From :
SKYSERVICE
6120 MIDFIELD ROAD
MISSISSAUGA, ONTARIO L5P 1B1
CANADA

VC-SKY001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

Contact Name
Vendor Phone 905-678-5636

Ship To Contact

Ship To Phone

Ship Via: Delivered

Ship Acct:

Buyer Chantal Lavoie
Customer POID
Customer Tax # 10127-2607
Terms Net 30
Currency CAD
FOB FCA - (Free Carrier)

Line Total: \$0.00

4 159001

D350-748-103
CROSSTUBE

9/26/2017

1.00

\$0.00

\$0.00

Yes

9/26/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417

Line Total: \$0.00

5 157356

D350-748-203
CROSSTUBE

9/26/2017

1.00

\$0.00

\$0.00

Yes

9/26/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417

Line Total: **DAS** \$0.00

38
9-89

6 156085

D135-1027-253 AFT
CROSSTUBE

9/26/2017

1.00

\$0.00

\$0.00

Yes

9/26/2017

LIQUID PENETRANT INSPECTION AS PER QSI 038 OR
LPI AS PER ASTM 1417

Note:

9/26/2017



Reference: PO37837

Qty: 1

A/C S/N:

TSO:

Sequence: 1